

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

REC'D 15 SEP 2004

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03 MAR 2005

Applicant's or agent's file reference 21.1105	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/10001	International filing date (day/month/year) 05.09.2003	Priority date (day/month/year) 05.09.2002
International Patent Classification (IPC) or both national classification and IPC E21B33/13		
Applicant SERVICES PETROLIERS SCHLUMBERGER et al.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.  
  
☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  29.03.2004	Date of completion of this report  14.09.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Zimpfer, E Telephone No. +49 89 2399-7881 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/10001**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-9 as originally filed

**Claims, Numbers**

1-7 received on 03.07.2004 with letter of 01.07.2004

**Drawings, Sheets**

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/10001**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-7
	No: Claims	
Inventive step (IS)	Yes: Claims	1-7
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

2. Citations and explanations

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/10001

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents :

D1: FR-A-2 784 095 (SCHLUMBERGER CIE DOWELL) 7 April 2000 (2000-04-07)

**1. Amendments :**

- 1.1 The amendments filed with the letter dated 01.07.2004 are allowable considering Article 19(2) PCT.

**2. Novelty :**

- 2.1 Since none of the prior art discloses all the technical features of independent claim 1, said claim as well as dependent claims 2-7 are considered as being novel over the cited prior art documents.

**3. Inventive Step :**

- 3.1 Document D1, considered as being the closest prior art document, discloses a well cementing composition comprising a base fluid, cement, reinforcing metallic fibers - amorphous cast iron fibers- (see p4 l28 - p5 l11), and particulate caoutchouc material to improve the flexibility of said composition.

The subject-matter of present claim 1 is different in the use of glass, carbon or polymer fibers, in addition to the metallic fibers, instead of caoutchouc particulate.

The technical problem solved by this differentiating features appears to be an increase of the stability of the cement slurry by increasing the sedimentation time, as shown in the present application (see table 3 and pages 5+6 of the present application).

Since none of the prior art document teaches or fairly suggests such a composition comprising these 2 types of fiber or such a technical effect, claim 1, as well as dependent claims 2-7, are considered as being inventive.

# CLAIMS

- 1 A cement slurry, comprising a base fluid including cement, a first fibrous component made of metallic fibres and a second fibrous component made of glass, carbon or polymeric fibres having a density close to that of the base fluid, said second fibrous component present at a concentration of less than 10% by mass of the total fibrous content of the fluid.
- 2 The cement slurry of claim 1, wherein the metallic fibres comprise amorphous cast iron.
- 3 The cement slurry of claim 2, wherein the metallic fibres are flat, plate-like structures having an average length less than 10mm.
- 4 The cement slurry as claimed in any preceding claim, wherein the second fibrous component is selected from the list consisting of glass, polyamide, novoloid, polypropylene and polyester fibres.
- 5 A cement slurry as claimed in any preceding claim wherein the second fibrous component has a length ranging from 5 to 35 mm.
- 6 A well fluid as claimed in any preceding claim, wherein the base fluid exhibits shear-thinning behaviour.
- 7 A method of treating a well, comprising pumping into the well a cement slurry as claimed in any of the preceding claims.